A1 contD.

comprises "pixel elements" arranged in matrix, which are formed by placing liquid crystal molecules in between transparent electrodes. When an arbitrary voltage is provided between the transparent electrodes corresponding to each pixel element, the alignment of the liquid crystal molecules in the pixel element is changed, and the degree of polarization of the light passing through the liquid crystal is varied, which leads to controlling the transmission rate of the light. The liquid crystal display device is divided into two types based on operation principles, that is, the simple matrix type and the active matrix type. Since the active matrix liquid crystal display device utilizes active elements, TFTs, switching elements for individual pixel elements, independent signals can be transmitted to each pixel element, and the device provides improved resolution and a clear display image.--

Please replace the paragraph beginning at page 2, line 6 with the following new paragraph:

--A TFT utilizing amorphous silicon thin film is often used as the switching element for the active matrix liquid crystal display device. Moreover, a recently proposed technique refers to a TFT that utilizes a polysilicon thin film formed either by heat treating an amorphous silicon thin film in a temperature over 600 °C, or by providing a laser crystallization in which a pulse laser (such as an excimer laser) is radiated to the thin film for recrystallization. The polysilicon thin film is advantageous in that it has higher mobility compared to the amorphous silicon thin film, which allows for not only the switching elements for the pixels but also the driving circuit for driving the

switching elements of the pixels to be formed on the same substrate using the polysilicon TFT.--

Please replace the paragraph beginning at page 2, line 19 with the following new paragraph:

A1 contd

--As mentioned above, the liquid crystal display device controls the transmission rate of the light passing through the liquid crystal by changing the degree of polarization of the light passing through the liquid crystal, but the device itself is not equipped with a light emitting member. Therefore, a light source of some sort must be provided to the device. For example, in the case of a transmission-type liquid crystal display device, a lighting device, a so-called light, is placed on the back side of the liquid crystal display, and the light transmitted through the device enables images to be displayed. In the case of a projector, a metal halide lamp and the like are used as the light source, and image is projected by combining the liquid crystal display device with a lens system. Moreover, in case of a reflection-type display, the incident light provided from the exterior is reflected by a reflecting electrode in order to display an image.--

Please replace the paragraph beginning at page 3, line 9 with the following new paragraph:

--In general, if light is radiated to a semiconductor, such as silicon, and light absorption occurs, electrons are excited to the conductive band and positive holes are excited to the valence band, generating electron-hole pairs and causing a so-called photoelectric effect. The same could be said for the amorphous silicon thin film or the

polysilicon thin film utilized as the pixel switching elements. By radiating light thereto, electron-hole pairs are generated in the thin film. Accordingly, when light is radiated to the TFT using either the amorphous silicon thin film or the polysilicon thin film as the active layer, photocurrent is caused by the electron-hole pairs, which increases the leak current during the off-state of the TFT. This leads to deteriorating the contrast and the like of the liquid crystal display.--

A1 cont.

Please replace the paragraph beginning at page 3, line 23 with the following new paragraph: 7

--In the case of a reflection-type liquid crystal display device, the reflecting electrode mainly composed of a metal film connected to the TFT is arranged to cover the TFT, so that no incident light from the exterior reaches the TFT directly. Accordingly, <u>TFT</u> leak current is prevented from increasing. However, in the case of a transmission-type liquid crystal display device, the TFT is not only exposed constantly to the strong light from the back light, but some incident light other than that from the back light also tends to reach the TFT. Moreover, in the case of projectors, the light reflected by the lens may reach the TFT. Accordingly, various inventions are proposed that aim at preventing incident light from reaching the TFT.--

Please replace the paragraph beginning at page 4, line 10 with the following new paragraph: 7

--For example, as shown in FIG. 11, shading film 63 and shading film 64 are provided above and under the switching electrode 62 via insulation layers, in order to block the light coming from above and under the switching element (Japanese Patent

Application Laid-Open Publication No. 58-159516). This is effective in reducing leak current, and in improving display characteristics.--

Please replace the paragraph beginning at page 4, line 17 with the following new paragraph: 7

A1 CONT'D

--According to another proposal, as shown in FIG. 12, in an adhered SOI substrate, an upper shading layer 66 and a lower shading layer 67 are provided above and under a MOSFET 65, in order to block the direct incident light coming from above and under the MOSFET, and to also block the light reflected by the back surface of the substrate, thereby effectively preventing an increase of TFT leak current (Japanese Patent Application Laid-Open Publication No. 10-293320).--

Please replace the paragraph beginning at page 5, line 8 with the following new paragraph:

A2

--According to the above method, shading layers are provided above and under the TFT so as to prevent incident light coming in from the exterior from reaching the semiconductor film or active layer of the TFT, and most of the incident light fails to reach the semiconductor film. However, the incident angle of the light coming into the liquid crystal display device is not always perpendicular the substrate, but has a certain degree of dispersion, and the light entering the display device may be repeatedly reflected within the device. When light reaches the TFT according to these reasons, the light causes problems such as an increase of TFT leak current.--

Please replace the paragraph beginning at page 5, line 19 with the following new paragraph:

A2 contd.

--As shown in FIG. 10 (a), light (A) and light (B) are blocked by the upper shading layer 54 and the lower shading layer 51, and they will not reach the TFT 55. However, the oblique incident light (C) coming from the side of upper shading layer 54 is reflected by the lower shading layer 51, and reaches the TFT 55. Moreover, the oblique incident light (D) coming from the side of upper shading layer 54 side is reflected by the lower shading layer 51, then reflected by the upper shading layer 54, before reaching the TFT 55. Similarly, the incident light (E) and (F) coming from the side of lower shading layer 51 also reaches the TFT 55 after being reflected one or more times. Therefore, according to the proposal of Japanese Patent Application Laid-Open Publication No. 58-159516, light traveling as mentioned above will reach the transistor causing an increase of leak current.--

Please replace the paragraph beginning at page 6, line 8 with the following new paragraph:

--Moreover, as shown in FIG. 10 (b), when the upper shading layer 60 is larger than the lower shading layer 57, the oblique incident light (C), (D) and (G) coming from the side of upper shading layer 60 is blocked by the upper shading layer, but on the other hand the oblique incident light (E), (F) and (I) coming from the side of lower shading layer 57 still reaches the TFT 61, and the oblique incident light (H) coming from the side of lower shading layer that would not have reached the TFT if the upper and lower shading layers were the same size also reaches the TFT 61 since it is reflected by

the back surface of the upper shading layer 60. As mentioned above, according to the invention disclosed in Japanese Patent Application Laid-Open Publication No. 10-293320, light traveling as described above will reach the transistor causing an increase of leak current.--

Please replace the paragraph beginning at page 6, line 22 with the following new paragraph:

A2 cont'd.

--Moreover, according to the method indicated in Japanese Patent Application Laid-Open Publication No. 10-319435, the light (G) coming in from the side of upper shading layer 54 shown in FIG. 10 (a), or the light (I) coming in from the side of lower shading layer 57 shown in FIG. 10 (b) will be diffused by the fine uneveness of the surface of the shading layer, and some of the light that would have reached the TFT if not for the diffusion will be removed effectively. However, since the direction of light reflected by the uneven surface of the shading layer is random, the light that would have reached the TFT by the second reflection if the surface of the shading layer were smooth would reach the TFT by a single reflection. The described arrangement causes some light to reach the TFT more easily, thereby causing an increase of leak current, similarly to the other two prior art examples.--

Please replace the paragraph beginning at page 7, line 10 with the following new paragraph:

--As explained above, it is difficult according to prior art techniques to prevent incident light traveling obliquely into the display device from above and under the device

A2 cont'd.

from reaching the TFT. By sufficiently increasing the size of the upper and lower shading films, it may be possible to reduce the intensity of the light reaching the TFT reflecting many times on the upper and lower shading films, by the reflection rate of the upper and lower shading films and the light absorption caused by the insulation film between the upper and lower shading films. However, according to such a method, the area of the shading films are insufficiently increased, causing other problems such as reduction of aperture rate, an important element of liquid crystal displays. Moreover, the increase of size of the shading films does not fundamentally prevent light from reaching the TFT.--

Please replace the paragraph beginning at page 20, line 3 with the following new paragraph:

A3

--Next, as shown in FIG. 5 (h), wet etching is performed through HF and the like, using resist 16 as the mask. Since wet etching is an isotropic etching, the etching spreads wider than the opening portion 17 of the resist 16, and forms a shape as shown in FIG. 5 (h). Accordingly, the position of the resist mask and the size of the opening of the resist 16 are to be formed based on the idea disclosed in the "summary (means to solve the problem)". Moreover, the process accuracy of the photolithography and the etching and the alignment accuracy of the resist to the lower shading layer and the TFT active layer should be considered when forming the resist 16. Dry etching using gas such as CF_4 or CF_4+CHF_3 could be performed instead of the wet etching.--